

of lead pencils had been cut into sections about three-eighths of an inch in length. These were soon followed by others as large as walnuts, and later by still others slightly disk shaped, measuring fully 3 inches in diameter by 2 inches in thickness. The ground was covered with them, and several branches of trees were broken off. They were exceedingly hard and would rebound, when falling on the rocks, without breaking. They melted very slowly even when placed in the sun. When half melted many had the appearance of the human eye—a pupil in the center and a ring surrounding it, with fine lines radiating in all directions. Others were composed of hard crystals of ice, several stones often being frozen together; and still others were of frozen snow. The next morning at 8 o'clock remnants of hailstones as large as peas were lying on the ground.

During the storm the river presented a beautiful appearance, there being thousands of miniature fountains from a foot to 6 feet in height [spouting up where the hail plunged in.—C. A.].

At the conclusion of the storm, which altogether lasted ten minutes, the thermometer had fallen to 70°. Probably the same storm was noted by a friend of mine, on the same day, in a railway train north of Saratoga, N. Y., when some of the car windows were broken.

A half hour after the storm was over we gathered a pailful of the hailstones, rowed half a mile across the river, and had them photographed.

PLAGIARISM

The compilers of books and articles frequently have occasion to quote from previous authors. Scrupulous honesty requires that quotation marks should be used in such cases, and thoughtful readers always wish the author's name also, together with the name and date of the publication and the page of the book, so that the quotation may be verified and its context be examined, in order that there may be no doubt as to the author's meaning. The very fact that one author has need of the ideas contained in another authority in order to complete or confirm his own work suffices to show that the reader also will need to know what these authorities are; therefore, the author who values his reputation will be careful to give them in full.

When writing a special class of books, such as those for children, and when making popular addresses to miscellaneous audiences, it is proper to avoid pedantry and give less prominence to the quotations, yet there should always be some way of distinguishing them from the main text. There is no good reason why articles printed in newspapers and popular magazines should not clearly show the quotations and the sources, although this is sometimes omitted.

An abstract of another article when given in new words is not a quotation, but the original author should be named. When only a series of disconnected paragraphs is taken from other works the quotation marks belong at the beginning and ending of the series, and the intervals between the paragraphs are to be filled in with leaders. The fonts of type make provision for every emergency in the matter of quotations. Probably the neatest method is to print quoted matter in smaller type.

The most serious aspect of the omission of quotation marks and references to authorities is the reaction upon the reputation of an author. If he quotes a fine English composition without mentioning the source, it is called plagiarism, literary piracy, borrowing without acknowledgment, theft, stealing, deception, fraud, dressing up in stolen clothes. Not unlikely the pirate brings on himself a suit for damages from some indignant publisher. Almost certainly his own publisher, as soon as the fraud is discovered, cuts off the promised remuneration or honorarium. If his article has been contributed to a journal or periodical the editor informs him that no more communications will be accepted.

Even if an author quotes from an earlier work by himself or introduces into a new article extensive portions of some old one, he should state that he is doing so. No publisher would willingly print as new matter that which had been published and read before. It is only the very cheapest papers

and magazines that "will print anything" without asking questions, so as to fill up the columns, omitting notes or acknowledgments and assuming that the readers will not recognize the antiquity of the stuff, or care for the authority behind it.

It was in order to avoid the bad results injurious both to the Weather Bureau and the plagiarist that the Chief directed the publication of Circular Letter No. 11, State Weather Service Division, dated August 23, 1895.—C. A.

EARTHQUAKE-PROOF BUILDINGS.

Although earthquakes have but little to do with meteorology, yet, the fact that our three thousand observers so frequently make mention of them, demonstrates that the weather service could investigate the frequency and distribution of these visitors if only that were not a question pertaining especially to the province of the United States Geological Survey.

However, there is a practical application of our knowledge of earthquakes that accords entirely with the beneficent spirit that pervades the Weather Bureau, and that is worthy a place in the MONTHLY WEATHER REVIEW.

The studies of Mallet on the great Neapolitan earthquake of 1857¹ demonstrated that by following certain rules, buildings could be erected that should be proof against destruction by any special class of quakes or shocks, and such buildings have already been built in Japan. The modern tall steel frame buildings are almost certainly proof against any but the most violent shocks, such as that of Riobomba in 1797.

The engineer in charge of the completion of the Washington obelisk, Bernard F. Green, assured the Editor that it is proof against such earthquakes as those of Boston, 1755, and Charleston, 1887.

The natives of some tropical countries have been accustomed to regard the slight skeleton huts as "earthquake proof," and yet they always rush out into the open air when the shocks come.

The following letter from Mr. James H. Kimball, Observer United States Weather Bureau at the station at Modena, Utah, shows that even a rickety frame house, when supported on elastic posts, may rock to and fro without injury, when a building of brick or stone and mortar would crack or crumble:

The following extract taken from Journal notes of this date (November 13) at Modena, Utah, is forwarded in the hope that it may prove of special interest:

"Two distinct tremors were felt here to-night. The first at 11:33 p. m., seventy-fifth meridian time, and the second, after an interval of about ten seconds.

"The Oregon Short Line Depot, where the Weather Bureau office is located (about 37° 20' N.; 113° 10' W., in Iron County), is now undergoing repair and is supported on jacks. The building is, at best, a mere shell and jokes regarding it are common. So when the tremors occurred little attention was paid to them, as the explanation that some one had pushed the building seemed plausible, and readily suggested itself. However, the following observations were secured:

"The first tremor, 11:33 p. m., could be accurately reproduced, in a building of this kind, by striking a sharp, noiseless blow on the northeast side. The vibrations were rapid and had ceased in about two seconds.

"The second shock was unlike the first, except in time of duration. The individual waves were much longer, and the general effect more noticeable; the building swayed slightly, but small furnishings were not displaced. The same motion could be produced by a strong push.

"A decided tremor was felt at Lund, Utah, at 11:32 p. m. This was sufficient to stop the station clock. Lund is about 30 miles northeast of Modena.

"At Milford, 66 miles northeast of Modena, small packages were thrown from the shelves of the general store. No time could be secured.

"Tremors were reported from Paris, 132 miles northeast of Modena at 11:37 p. m."

¹ Robert Mallet, First Principles of Observational Seismology. London, 1862.

The Bureau is indebted to Mr. Robert Morton, Agent in charge of the Oregon Short Line Station at Modena, for his active interest in this matter.

We commend the study of the subject and the study of Mallet's work to those who are planning houses, structures, and other buildings in this country. Our earthquakes are comparatively slight, but still they ought to be considered in every plan for the erection of reliable structures.—C. A.

SIGNS AND WEATHER.

The following extract is from the editorial page of the Ithaca, N. Y., Herald for November 15, 1901, under the above heading:

The Weather Bureau has predicted a hard winter, and the present early snowfall would indicate that the prediction is to be fulfilled. But lake sailors recall a winter several years ago when the Bureau predicted severe weather that did not materialize, and they declare that certain signs and omens show that the winter is to be a mild one.

It is not understood how the editor above quoted could have been so completely misled as to the purpose and work of the United States Weather Bureau.

It has never yet attempted to forecast the weather for a season in advance, and does not anticipate doing so in the near future.

Neither is it aware of any other reputable meteorological service that is attempting such forecasts, with the possible exception of the Indian Meteorological Office, which is investigating the relation between the variations in the number of sun spots and the occurrence of droughts in India.

In general, seasonal forecasts have been undertaken by prophets of the Hicks or Wiggins type only, or by would-be scientists who read the weather from the signs of the moon or of the stars. Many farmers have professed to be able to forecast the character of the coming winter from the thickness of the husks on the ears of corn, and hunters make like forecasts based upon the character of the breast bone of the goose, and the early or late southward migration of birds.

We have every reason to expect that forecasts of this character will continue to be made for many years to come, or at least until the public in general has learned to distinguish between science and superstition, facts and fancy.

Meanwhile the Weather Bureau will devote itself to the study of meteorology and the laws governing the generation and propagation of storms. It will endeavor from day to day to forecast the probable course of such storms as make their appearance upon the weather map, and to foretell the weather changes that will occur in different parts of the country as a result of the storm movements. With these daily forecasts we must be content until the science of meteorology is more fully developed.

The intelligent daily press of our land has been of inestimable value in disseminating the forecasts of the Bureau among the people whom they are intended to benefit. The public will be still further its debtor if it will join hands with the Weather Bureau in an effort to eradicate from the popular mind the many fallacies that have no foundation in fact, but are a survival of traditions handed down from some past generation when scientific knowledge was confined to the few.—H. H. K.

THE EQUINOCTIAL STORM.

The Salem, Oreg., Statesman, for October 1, 1901, quotes the following from the Philadelphia Press:

As a matter of fact for years all the leading meteorologists in the United States Weather Bureau and out of it, in book, article, lecture, and government publications, have set out clearly and distinctly the non-existence of any such thing as an equinoctial storm. Moreover, they have also explained how, owing to the fact that September is the month of maximum development of the West Indian hurricanes, the

belief originated and is from time to time seemingly confirmed by the actual weather facts.

The Statesman then comments upon this paragraph of the Press, as follows:

There has not been a year since Mount Hood first reared its majestic head over its own big empire that has failed to bring a rain storm between the 15th and the 25th of September. * * * This unflinching regularity can be none other than the result of equinoctial disturbances.

Mr. E. A. Beals, Local Forecast Official at Portland, Oreg., has prepared the following tables showing the rainfall each day from September 15 to October 6, inclusive, for the last thirty years—1872 to 1901, inclusive.

Daily rainfall at Portland, Oreg., September 15-25.

| Year. | Day of month. | | | | | | | | | | |
|-------|---------------|-------|-------|-------|-------|-------|-------|------|------|-------|-------|
| | 15th. | 16th. | 17th. | 18th. | 19th. | 20th. | 21st. | 22d. | 23d. | 24th. | 25th. |
| 1872 | | | | | | | | 1.07 | 0.01 | | |
| 1873 | | | | | | | | | | | |
| 1874 | | | 0.01 | | | | | | | 0.01 | |
| 1875 | | | | | 0.03 | | | | | | |
| 1876 | | | | 0.18 | | 0.85 | 0.04 | | | | |
| 1877 | | | | | | 0.18 | | | 0.01 | | 1.07 |
| 1878 | | | | | | | 0.05 | T. | 0.97 | 0.05 | T. |
| 1879 | | | | | | | | 0.01 | 0.01 | | |
| 1880 | | | 0.26 | | | T. | | 0.26 | 0.32 | T. | |
| 1881 | | | 0.40 | 0.70 | 0.25 | | 0.01 | 0.37 | 0.57 | 0.22 | 0.07 |
| 1882 | 0.07 | | 0.01 | | | | | | | | |
| 1883 | | | 0.02 | 0.33 | | | | | | | |
| 1884 | | | | | | T. | 0.11 | | | | |
| 1885 | 0.32 | | | | | | | | 0.74 | 0.19 | |
| 1886 | | | | | | | | 0.36 | 0.30 | 0.01 | 0.17 |
| 1887 | | | | 0.43 | 0.79 | | | | | 0.01 | |
| 1888 | | | 0.14 | 0.03 | 0.84 | 0.03 | | | | | |
| 1889 | | | | | | T. | T. | 0.41 | 0.06 | 0.01 | 0.01 |
| 1890 | | | | | T. | | | | | | |
| 1891 | | 0.01 | 0.05 | 0.22 | 0.22 | | T. | 0.07 | | | |
| 1892 | | | T. | T. | T. | 0.13 | | 0.53 | 0.70 | 0.27 | |
| 1893 | | | T. | 0.03 | 0.58 | 0.16 | 0.01 | | | | |
| 1894 | 0.02 | | | 0.04 | | | T. | | | | 0.30 |
| 1895 | 0.01 | 0.02 | | | 0.13 | 0.03 | | | | T. | |
| 1896 | 0.37 | | | | | | | | T. | | |
| 1897 | | | | | | | | | | | |
| 1898 | | | | | 0.25 | | 1.27 | 0.24 | T. | T. | |
| 1899 | | | | | | | | | | | |
| 1900 | 0.25 | 0.04 | T. | | 0.42 | 0.25 | T. | T. | 0.11 | | |
| 1901 | | | | | | T. | 0.88 | 0.60 | 0.25 | 0.18 | 0.39 |

Daily rainfall at Portland, Oreg., September 26 to October 6.

| Year. | Day of month. | | | | | | | | | | |
|-------|---------------|-------|-------|-------|-------|------|------|------|------|------|------|
| | 26th. | 27th. | 28th. | 29th. | 30th. | 1st. | 2d. | 3d. | 4th. | 5th. | 6th. |
| 1872 | 0.04 | | | | | | 0.22 | 0.23 | 0.01 | | |
| 1873 | | | | | | | | | 0.01 | | |
| 1874 | | | | | | | | | | | |
| 1875 | | | | | | | 0.03 | 0.36 | | | |
| 1876 | | | | | | | | | | | |
| 1877 | 0.04 | 0.51 | 0.49 | 0.13 | | 0.95 | 0.24 | 0.75 | 0.50 | 0.19 | 0.11 |
| 1878 | 0.04 | 0.61 | 0.26 | 0.60 | 0.88 | 0.15 | 0.01 | | | T. | |
| 1879 | | 0.19 | 0.56 | 0.16 | 0.80 | 0.04 | 0.07 | 0.09 | 0.22 | 0.29 | 0.39 |
| 1880 | | | | | | 0.01 | | | | | |
| 1881 | | | T. | | 0.03 | | | 0.26 | 0.05 | T. | 0.03 |
| 1882 | | | | | 0.02 | 0.50 | 0.54 | 0.10 | 0.03 | 0.11 | 0.50 |
| 1883 | | | 0.14 | 0.01 | 0.02 | 1.07 | | | 0.26 | 0.35 | 0.07 |
| 1884 | | | 0.11 | 0.69 | 0.46 | 0.02 | | | 0.16 | 0.14 | 0.01 |
| 1885 | | 0.06 | 0.03 | | | | | | | | |
| 1886 | | | | | | | | | 0.02 | | |
| 1887 | | | | 0.04 | 1.17 | 0.19 | | | 0.10 | 0.18 | 0.76 |
| 1888 | | | | | 0.10 | 0.08 | | | | | |
| 1889 | | T. | 0.01 | 0.75 | 0.26 | 0.37 | | 0.01 | | T. | 0.01 |
| 1890 | | | | T. | | 0.37 | 0.08 | 0.05 | 0.25 | 0.27 | 0.04 |
| 1891 | | | 0.23 | 0.55 | 0.07 | | | 0.01 | | | |
| 1892 | | | | | | | | | | | T. |
| 1893 | T. | | 0.10 | 0.63 | | | 0.03 | 0.17 | 0.21 | 0.06 | 0.73 |
| 1894 | 0.16 | 0.09 | 0.08 | 0.01 | 0.02 | 0.30 | 0.17 | 0.09 | | 0.02 | |
| 1895 | | | | | | T. | T. | | | | |
| 1896 | | | | | 0.02 | 0.08 | 0.03 | | | | |
| 1897 | T. | 0.25 | T. | 0.08 | 0.03 | 0.01 | | | | | |
| 1898 | | 0.10 | 0.02 | 0.26 | 0.25 | 0.26 | 0.15 | | T. | | |
| 1899 | | | | 0.30 | 0.37 | 0.24 | 0.02 | | | | T. |
| 1900 | | | | | T. | | | T. | 0.05 | 0.04 | T. |
| 1901 | 0.16 | 0.05 | 0.10 | 0.44 | | 0.17 | 0.06 | | 0.03 | 0.26 | |

A most casual examination of these tables will convince any one that the editor of the Statesman was not conversant with the facts when he penned the above comment. During the last thirty years there have been four years without a measurable amount of rain between the dates he specifies, and in two additional years not over 0.01 inch fell on any one day.